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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/024,567	12/21/2001	Bill Engst	A8224	3671
7590	10/09/2003			
SUGHRUE MION, PLLC 2100 Pennsylvania Avenue, NW Washington, DC 20037-3213			EXAMINER GLENN, KIMBERLY E	
			ART UNIT 2817	PAPER NUMBER

DATE MAILED: 10/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/024,567

Applicant(s)

ENGST, BILL

Examiner

Kimberly E Glenn

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 June 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-10 and 12-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Duong et al US Patent 6,081,175.

The primary reference, Duong et al disclose a coupling structure 47 for coupling a ceramic resonator 16 to a metallic resonator 17', the combination of these cavity resonators acting as a filter having port 25. The coupling structure 47 provides the required reorientation by virtue of the guide surface 40 cut into a partition 43 as one edge surface of a non-rectangular coupling window 46. The coupling structure includes a notch 45 and a tuning screw 44 piercing part of the coupling structure wall from an outside edge surface into the coupling window 46 and extending toward and possibly into the notch 45. This notch/tuning screw refinement of the basic coupling structure 47 allows adjusting the coupling between the dissimilar cavities. The notch/tuning screw provides a capacitance, made larger by the notch, which reorients the magnetic field along the axis of the tuning screw. The capacitance of the notch/tuning screw reduces attenuation of the electromagnetic field energy in moving from one cavity to the other. In some implementations of the coupling structure with a non-rectangular window and an adjusting notch/tuning screw, an adjustment in coupling by as much as 30% has been achieved. Although two cavities are shown for the two disclosed embodiments, the present invention could

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be used for filters with more than two cavities with a disclosed coupling structure between each physically adjacent pair of cavities.

Thus, Duong et al is shown to teach all the limitation of the claims with the exception of the first and second resonators being capacitive cross-coupled.

Cameron discloses cross-couplings through probes 80, 82 between cavities 3 and 8 and 2 and 9 respectively. Cameron states that a self-equalized filter is provided with internal couplings between non-adjacent resonators, in addition to the main sequential-resonator couplings, which give the in-band linearity and high selectivity without the need for external equalizer cavities. Self-equalization is accomplished by the cross-coupling probes 80, 82. (Figure 7 and column 4 line 56-67 and column 1 line 23 –57)

One of ordinary skill in the art, at the time of the invention, would have found it obvious to provide the filter of Duong et al with the cross coupling probes as taught by Cameron. The motivation for this modification would be to provide self-equalization, which provides in band linearity and high selectivity without the need for external equalizer cavities.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Duong et al US Patent 6,081,175 in view of Cameron US Patent 5,739,733 in view of Fiedziuszko US Patent 4,453,146. (Of record)

Duong et al disclose a coupling structure 47 for coupling a ceramic resonator 16 to a metallic resonator 17', the combination of these cavity resonators acting as a filter having port 25. The coupling structure 47 provides the required reorientation by virtue of the guide surface 40 cut into a partition 43 as one edge surface of a non-rectangular coupling window 46.

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Cameron discloses cross-couplings through probes 80, 82 between cavities 3 and 8 and 2 and 9 respectively.

Thus the primary references Duong et al and Cameron are shown to teach all the limitations of the claim with the exception of the bar being provided in a insulating collar which is removably fixed to the cavity wall.

Fiedziuszko disclose a probe 22 which is insulated from the electrically conductive cavity 12 walls 40 by means of a cylindrical dielectric sleeve 24 surrounding probe 22 and fitting into cylindrical notch 34 cut into housing 28.

One skilled in the art, at the time of the invention, would have found it obvious to provide the cross coupling probe of Cameron with an insulative sleeve as taught by Fiedziuszko. The motivation /suggestion for this modification would be to provide isolation between the probe and the cavity wall.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kimberly E Glenn whose telephone number is (703) 306-5942.


The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Pascal can be reached on (703) 308-4909. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Kimberly E Glenn
Examiner
Art Unit 2817

keg

A large, stylized handwritten signature in black ink, likely belonging to Robert Pascal, is written over the printed name and title.

Robert Pascal
Supervisor, Patent Examiner
Technology Center 2800